CLEARWATER
GROUP, INC.
Environmental Services

Mr. Barney Chan
Alameda County Environmental Health Services
Environmental Protection Division
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

August 3, 2001

AUG 10 2001

Re: Groundwater Monitoring Report, Second Quarter 2001
Sensitive Receptor Survey and Workplan for Continuing Investigation
Eagle Gas Station
4301 San Leandro Street
Oakland, California 94601
[redacted]

Dear Mr. Chan,

Clearwater Group (Clearwater), on behalf of Ms. Farah Naz, is pleased to present this letter report of findings for groundwater monitoring activities, a sensitive receptor survey and a workplan for continuing investigation at the above site. The activities reported here correspond with those proposed in the monitoring portion of the September 10, 1999, Artesian Environmental *Soil Remediation Pilot Study and Well Installation Workplan,* and those requested by Alameda county in correspondence dated May 10, 2001.

Site Description

The subject site is located in the southern portion of Oakland, California at the south corner of San Leandro Street and High Street, approximately 1,000 feet east of Interstate Highway 880. The site is bounded by commercial property to the southeast, southwest, and northwest, and by the BART tracks to the northeast (Figure 1). Based on observations made in previous investigations, it is known that the site is predominantly underlain by clays with some clayey gravel and clayey sand in shallower depths to approximately 10 feet below ground surface (bgs), and silty sand below 20 feet in some areas.

Background

On April 21 and April 22, 1999, Artesian Environmental (now Clearwater) oversaw the removal of five underground storage tanks (USTs) at the subject site. The USTs included two 6,000 gallon gasoline USTs, two 4,000 gallon diesel USTs, and one 300 gallon used oil UST (Figure A). Field observations included strong petroleum odors from soils near the former USTs. A total of five confirmation soil samples and three groundwater samples were collected from the UST excavations. Laboratory analytical results confirmed an unauthorized release of petroleum (Table 2).

In a letter dated May 10, 1999, the Alameda County Department of Environmental Health recommended that soil be remediated by over-excavation / land disposal and that "as much groundwater as possible" be pumped from the excavation. Subsequently, approximately 800 tons of petroleum impacted soil were excavated and disposed of as Class II non-hazardous waste. Less than 1,000 gallons of petroleum impacted groundwater were pumped from the excavation. Groundwater did not recharge after pumping. Existing structures limited the amount of soil that could be safely excavated. Soil samples collected from the excavation walls and product piping trenches indicated some remaining petroleum and MTBE contamination.

On August 4 and August 5, 1999, approximately 100 linear feet of product piping was removed. Vent piping from between the former USTs and the south corner of the onsite building was also removed. All piping was cut and disposed of as scrap metal. On August 5, 1999, confirmation soil samples were collected along the piping trench. Six samples were collected from approximately three feet bgs. An additional four samples were collected, one for each of four former fuel dispensers. Laboratory analytical results indicated the presence of hydrocarbon related contamination along the piping trenches (Table 2).

On September 26, 2000, West Hazmat of Rancho Cordova, California, used a CME 75 drill rig to advance three borings to approximately 25 feet bgs (Figure 2), and collect soil samples (Table 2). Each of the three borings was converted to a groundwater monitoring well using clean, flush-threaded, two-inch diameter PVC well materials. On October 3rd and 10th, 2000, Clearwater surveyed the top of casings elevations for each well relative to an arbitrary benchmark, and developed the wells for monitoring. Initial ground samples collected from these wells contained 83,000 µg/L to 250,000 µg/L total petroleum hydrocarbons as gasoline (TPHg), and 33,000 µg/L to 400,000 µg/L methyl-tert butyl ether (MTBE).

Groundwater Monitoring Field Activities

Date of field activities:	5/8/01 and 5/29/01
Wells gauged/sampled:	MW-1, MW-2 and MW-3
Analytes tested:	Total Petroleum Hydrocarbons as diesel (TPHd) and gasoline (TPHg), benzene, toluene, ethyl benzene and xylenes (BTEX), five fuel oxygenates, (MTBE, ETBE, DIPE, TAME, TBA), lead scavengers (1,2-DCA and 1,2-DBA), and Poly-Nuclear Aromatic hydrocarbons (PNAs)
Analytical methods:	EPA Methods 8015 (modified), 8020, 8260 and 8270
Laboratory:	Entech Analytical Labs, Inc., of Sunnyvale, CA
Remarks:	MW-2 was tested for PNAs (18 compounds) this quarter at the request of Alameda County

Groundwater Monitoring Results

Depth to water:	7.60 feet (MW-1) to 13.38 feet (MW-3) below ground surface (bgs) ?
Flow direction/gradient:	East-northeast, at 0.050 ft/ft
SPH - wells/thicknesses:	Not detected for any well
TPHd concentration range:	470 µg/L (MW-3) to 2,100 µg/L (MW-2)
TPHg concentration range:	36,000 µg/L (MW-1) to 140,000 µg/L (MW-2)
Benzene concentration range:	<100 µg/L (MW-1) to 2,800 µg/L (MW-2)
MTBE concentration range:	15,000 µg/L (MW-1) to 840,000 µg/L (MW-2)
PNA concentration range:	9.7 µg/L Naphthalene, all other PNAs are <5 µg/L (Only the water sample from MW-2 was tested)
Remarks:	Laboratory indicated that diesel detected in all three wells was "within quantification range but atypical for fuel." Groundwater gradient is similar to previous quarters. Groundwater gradient does not follow site topography, but appear to flow toward the former Adams Creek channel to the east of the site (see below).

Sensitive Receptor Survey Results

During recent field activities, Clearwater Staff performed a thorough reconnaissance of the general area to find any potentially sensitive receptors. An underground utility survey was completed through the City Of Oakland, and a search of records at the Department of Water Resources in Sacramento to locate any domestic well that might be adversely affected by contamination at the property was completed.

Surrounding Populations

There are approximately 1,000 persons residing within 2,000 feet of the site. There are no schools, daycare centers, senior centers or medical facilities within 2,000 feet of the site. Basements ?

Domestic Water Quality and Current and Projected Use

In Oakland, drinking water to all residences is supplied by the East Bay Municipal Utilities District (EBMUD). The reservoir which supplies drinking water to EBMUD in this area is located approximately 1.75 miles to the northwest of the site. Historically, groundwater in this region of Oakland has never been collected for domestic use. Groundwater in the area is probably too saline for anything but some industrial uses.

Surface Waters

There are no permanent surface waters (creeks, streams, rivers or lakes) located within 2,000 feet of the property. ~~According to City of Oakland sewer and storm water maps, Adams (or Peralta) Creek ran from~~ the North to the South ~~200 feet east of the site. Adams Creek has now been converted to a storm drain~~ that ~~leads to the San Francisco Bay~~.

Subsurface Conditions

Subsurface sediments, as observed during UST removal, Geoprobe sampling, and monitoring well construction, consist of primarily of clays, silty clays, gravely clays, and some clayey sand below 20 feet in some areas. These observed sediments correspond with site location on the marginal plain of the San Francisco Bay.

Local Hydrology

Surface runoff near the site is the result of overland flow from precipitation which then feeds into storm water drains, and ultimately, to the San Francisco Bay. Regionally, the site is located on the eastern side of the Bay Area marginal plain.

Nearest Subsurface Utilities and Vapor Pathways

There are no buildings or residences with basements within 250 feet of the site which might act as vapor receptors for petroleum hydrocarbons, nor are there any electrical trenches within 250 feet of the site. The only utility pipes deep enough to come into contact with groundwater are three parallel sewer lines run along High Street to the northwest of the property. The bases of two sewer lines pipes are set at about 7 feet bgs, and the third is set at about 13 feet bgs. As mentioned under 'Surface Waters', the Adams Creek storm drain is located at about 250 feet to the southeast of the site, and the base of the storm drain is set at about 10 feet bgs.

Climatological Conditions

Annual precipitation for the city of Oakland is approximately 45 inches per year.

Local Land Use

Local land use is primarily for industrial and warehouse use, though there are some residential land use as well. Essentially all land leading down slope of the site, to the southwest, is used for warehouses and industry.

Ecological Receptors

Within a 2,000 foot radius of the site, there are no major ecological receptors: no state or federal parks, preserves, or forest land, and no lakes or other water ways.

Department of Water Resources Well Search Results

Based on the DWR search results, only seven water wells are located within a half mile (2,640 feet) of the project site. Four wells are located across the tidal channel on the island of Alameda (Appendix A). Of the three wells located in Oakland, all three were constructed for industrial use. Two are located at an abandoned power station and their use was discontinued because the water from the well was "too salty in 1932 for the boiler". The third is located 0.4 miles to the southwest of the site down High Street, is screened below 170 feet bgs, and is used for industrial purposes.

location? Closed?

Summary And Conclusions

Laboratory analytical results confirm petroleum related soil and groundwater contamination remain at this site. Soil contamination is greatest near the former UST excavation. Previous data indicate that some contaminated soil may remain under the building structure or near the former dispensers. The extent of the groundwater contaminant plume has not yet been delineated, and requires further investigation.

Field observations during drilling activities indicated that first observed groundwater was is similar for all wells (17 feet bgs to 19 feet bgs). Static groundwater levels, however, varied considerably between the three wells. If measured static water levels are accurate, groundwater appears to flow towards the northeast, at a steep gradient (i = 0.050 ft/ft). This groundwater flow directions is approximately opposite to the direction of San Francisco Bay. However, it does trend toward the channel of the former Adams Creek.

Three operating USTs buried in artificial fill material currently occupy the former UST cavity, potentially acting as a groundwater sink interfering with normal groundwater flow patterns. Soil or other subsurface conditions may be influencing well recharge or groundwater gradient, producing anomalous groundwater elevation and gradient data.

Recommendations & Workplan for Continuing Investigation

Clearwater recommends additional site investigative activities to more completely delineate the groundwater contaminant plume, and assess the local groundwater pattern. Currently, varying amounts of gasoline (36,000 to 140,000 µg/L) and MTBE (15,000 to 840,000 µg/L) occur in all three site monitoring wells, and the site groundwater gradient is questionable. We recommend the continuation of quarterly monitoring as planned. What about remediation?

Proposed Scope of Continued Investigation

The purpose of the proposed work is to evaluate groundwater surrounding the property in several directions to determine the extent of groundwater contamination, and the regional groundwater gradient . To accomplish this goal, the following scope of work is proposed:

- Install eight groundwater wells, ZP46C-1 through ZP46C-11, each screened from 10 to 25 feet bgs (similar to previously existing wells) in most directions surrounding the site. Proposed well locations are shown on Figure 3.

- After well drilling completion, all new monitoring wells shall be surveyed, developed by purging and bailing, and then sampled along with the currently existing wells.

Proposed Methods

Drilling and Soil Sampling

Prior to drilling, Clearwater will prepare site specific Health and Safety Plan for drilling activities. Prior to drilling, the site will be marked by Underground Service Alert (USA) to identify utilities leading to the site. Appropriate drilling and encroachment permits will be obtained to the start of fieldwork. All fieldwork will be conducted in accordance with Clearwater's Field Protocols (attached).

In most cases a CME-75 hollow-stem auger rig will be used to drill and complete all wells. Due to access limitations in some of the boring locations, however, a tractor mounted 'Rhino' rig set with a hollow-stem auger may also be used. At each monitoring well location, borings will be cored and samples retained every 5-feet. Portions of each soil sample will be retained for a visual sedimentologic description by a Clearwater geologist using the Unified Soil Classification System and screening for organic vapors using a photo-ionizing organic vapor meter (OVM).

Soil samples retained for laboratory analysis will be covered with Teflon lined end caps, labeled, documented on a chain-of-custody form, and placed on ice in a cooler for transport to the project laboratory. Soil samples will be selected for laboratory analysis based on elevated OVM readings, field observations, and proximity to the capillary fringe. It is anticipated that at least one and up to

four soil sample will be submitted for analysis from each borehole. It is anticipated that all boreholes will completed to 25 feet bgs.

Well Installation

After completion of soil borings, all wells shall be completed with two-inch diameter PVC 0.010" slot well screen from the completed depth (25 feet) to 10 feet bgs. A sand pack of #2/12 Lonestar sand will be placed from the total depth of boring to four feet above the screen (6 feet bgs). The sand pack will then be topped with three feet of bentonite as a seal, and then concrete to ground level where an appropriate well box will be mounted flush to ground surface to protect the top of the well casing.

Soil and Water Sample Analyses

Soil samples will be forwarded to the project lab for analysis of the following constituents:

- Total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015 Modified
- Total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015 Modified
- Benzene, toluene, ethyl benzene and xylenes (BTEX) by EPA Method 8020
- Fuel Oxygenates (MTBE, ETBE, DIPE, TAME, TBA) by EPA Method 8260
- Lead scavengers (1,2-DCA and 1,2-DBA) by EPA Method 8260

The most contaminated sample from each boring will also be screened for:

- Poly Nuclear Aromatic Hydrocarbons (PNAs) by EPA Method 8270

Groundwater samples shall be collected from each monitoring well following surveying, and well development and samples will be forwarded to the project lab for analysis of the following constituents:

- Total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015 Modified
- Total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015 Modified
- Benzene, toluene, ethyl benzene and xylenes (BTEX) by EPA Method 8020
- Fuel Oxygenates (MTBE, ETBE, DIPE, TAME and TBA) by EPA Method 8260
- Lead scavengers (1,2-DCA and 1,2-DBA) by EPA Method 8260
- Poly Nuclear Aromatic Hydrocarbons (PNAs) by EPA Method 8270

Proposed Reporting

Following completion of investigative activities, Clearwater will prepare a report describing the results of the soil and groundwater subsurface investigation. The report will summarize investigation/analytical methods and results, and include supporting tables and figures. Additionally, the report will include cross sections of the subsurface to display the subsurface geology of the site. Based on soil and water sampling results, the residual contaminant mass will be calculated and used to determine whether the known contaminant plume is stable, shrinking or expanding. The report will provide conclusions, recommendations, and remediation alternatives. The report will be reviewed and signed by a California Registered Geologist at Clearwater.

Attachments

Figure 1	Vicinity Map, Eagle Gas
Figure 2	Site Map, Eagle Gas
Figure 3	Groundwater Elevation Map - 5/08/01, Eagle Gas
Figure 4	Hydrocarbon Concentration in Groundwater, Eagle Gas - May 8, 2001
Figure 5	Site Vicinity Map, Eagle Gas
Figure A	Historical Sample Locations, Eagle Gas
Table 1	Groundwater Elevations and Sample Analytical Results, Eagle Gas
Table 2	Soil Sample Analytical Results

Clearwater Field Procedures

Well Gauging Data / Purge Calculations and Well Purging Data

Laboratory Reports and Chain-of-Custody Forms

Department of Water Resources Well Search Results

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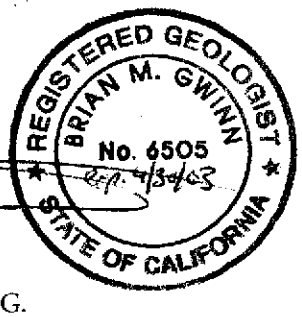
Certification

This report was prepared under the supervision of a professional Registered Geologist in the state of California. All statements, conclusions and recommendations are based solely upon published results from previous consultants, field observations by Clearwater Group and laboratory analysis performed by a California DOHS-certified laboratory related to the work performed by Clearwater Group. Information and interpretation presented herein are for the sole use of the client and regulating agency. The information and interpretation contained in this document should not be relied upon by a third party. The service provided by Clearwater Group has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Clearwater Group,

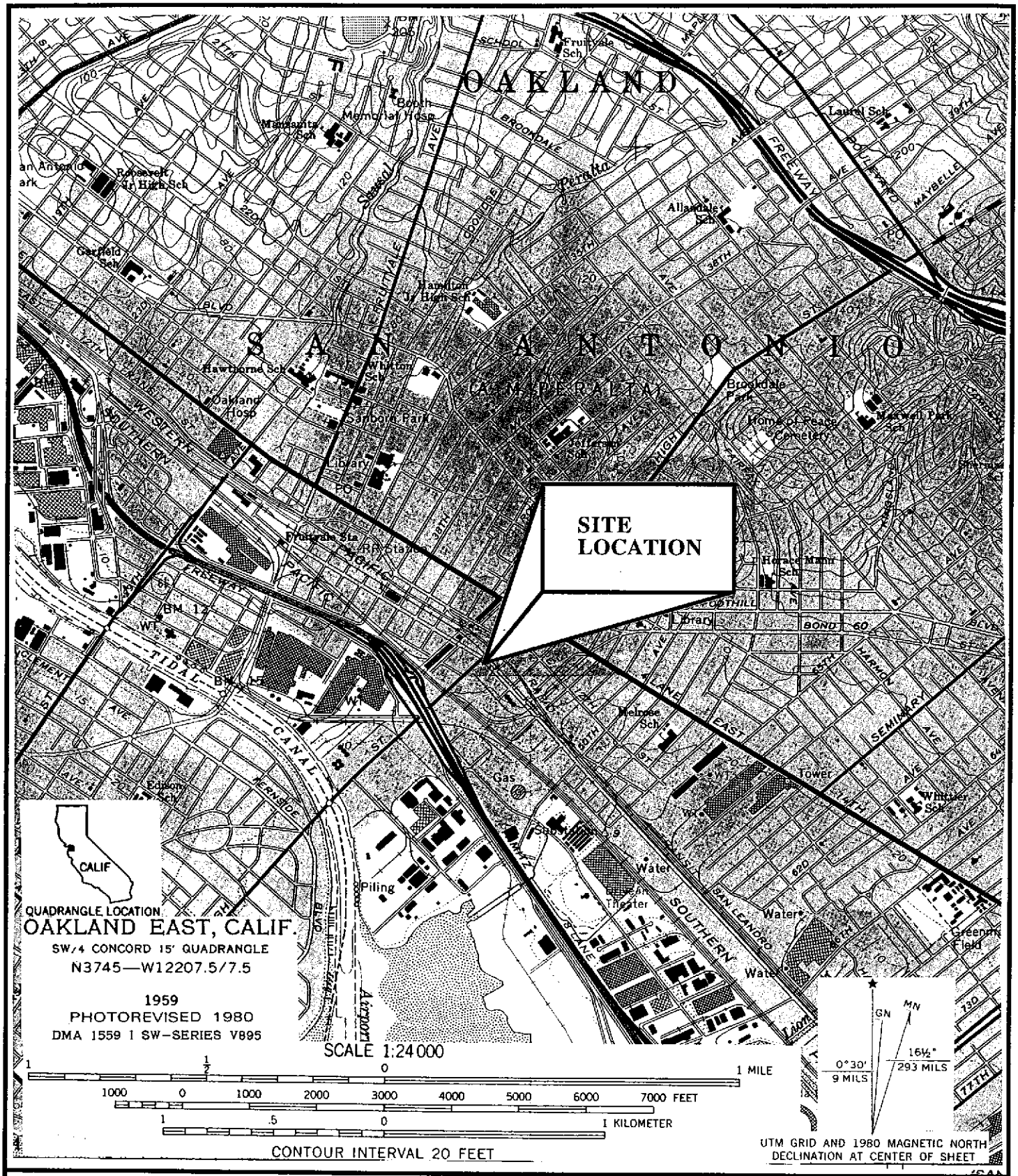
Prepared by:



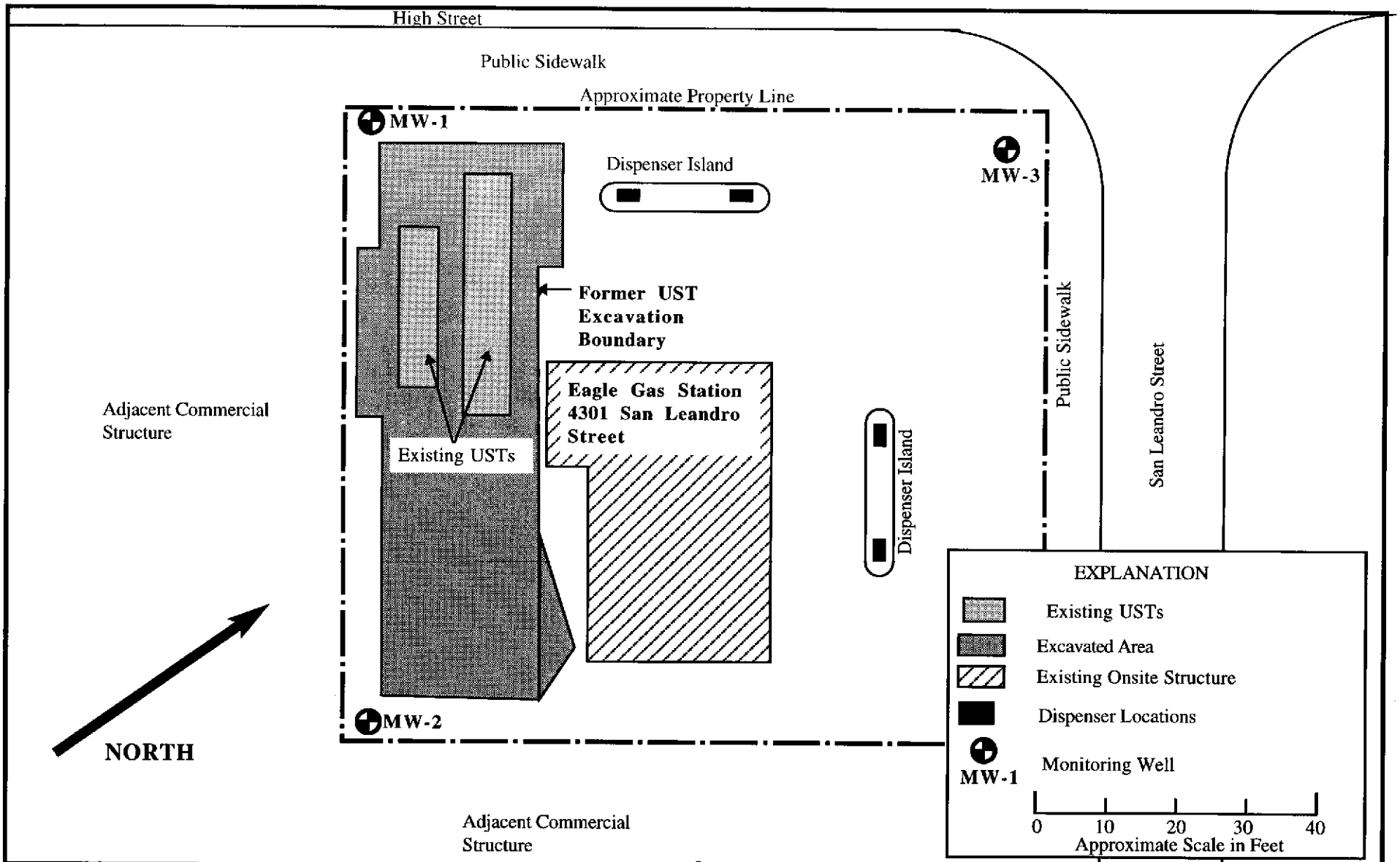
Andrew M. Galleni
Project Geologist

Brian Gwinn, R.G.
Senior Geologist

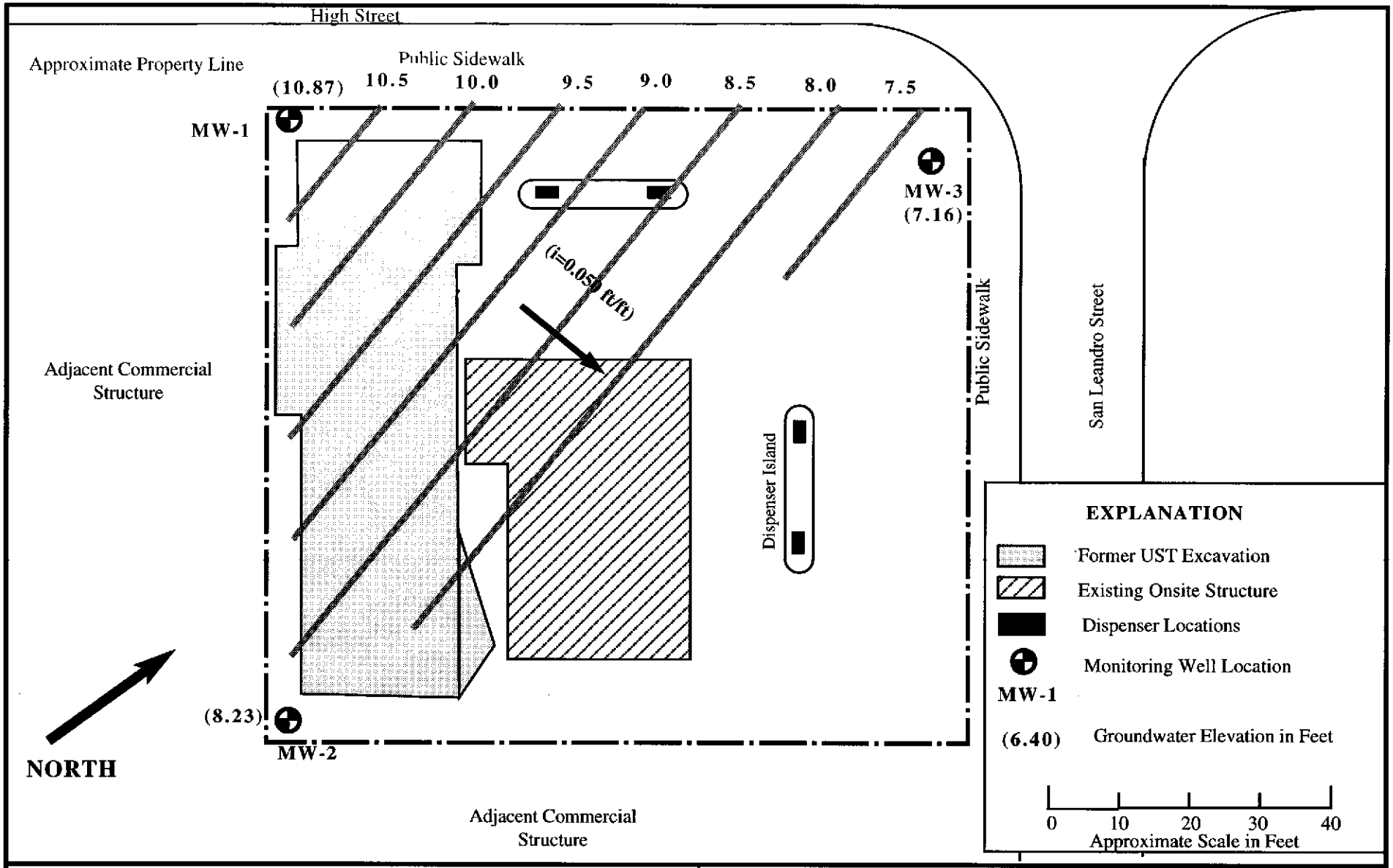
CC: Inspector Hernan Gomez, Oakland Fire Department
Mr. Muhammad Jamil and Ms. Farah Naz, 40092 Davis Street, Fremont, CA 94538



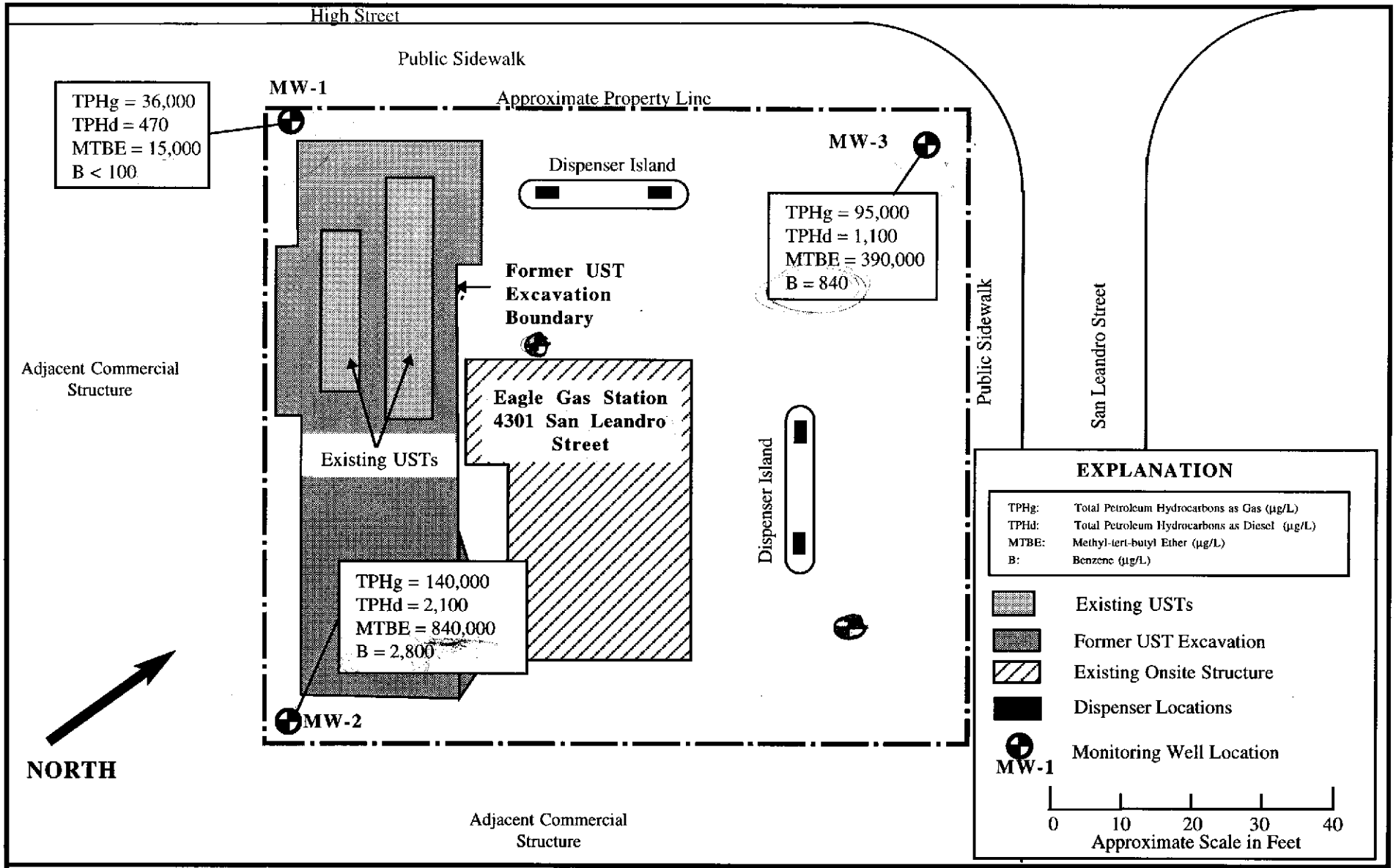
Clearwater Group, Inc. **520 3rd. St. Suite 104** **Oakland, California 94607** **Phone (510) 307-9943 Fax (510) 232-2823**		**Vicinity Map** **Eagle Gas** **4301 San Leandro** **Oakland, California**	
Project No. ZP 046A	Date Prepared: 10/00	Prepared by: Judi Fox	Figure 1



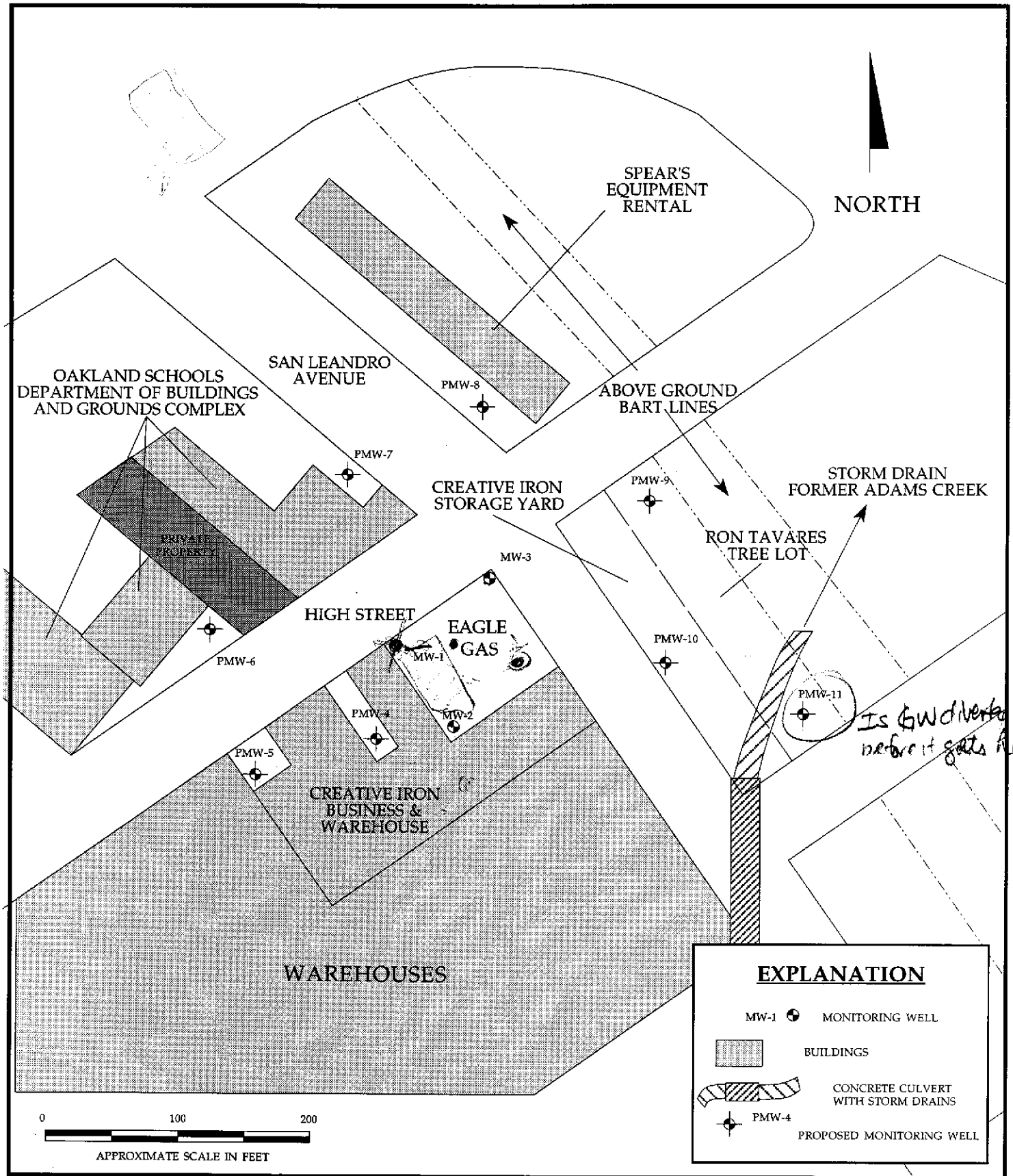
CLEARWATER GROUP **520 Third Street, Suite 104** **Oakland California**		**Site Map - Eagle Gas** **4301 San Leandro Street** **Oakland California**	
Project No. ZP046A	**Date: 8/01**	**Prepared by:** **A.M. Galleni**	**Figure 2**



CLEARWATER GROUP **520 Third Street, Suite 104** **Oakland, California**		**Groundwater Elevation Map - 5/08/01** **Eagle Gas, 4301 San Leandro Street** **Oakland, California**	
Project No. ZP046A	**Date:8/01**	**Prepared by:** **Andrew M. Galleni**	**Figure 3**



CLEARWATER GROUP **520 Third Street, Suite 104** **Oakland, California**	**Hydrocarbon Concentration in Goundwater** **Eagle Gas - May 8, 2001** **4301 San Leandro Street** **Oakland, California**
Project No. ZP046A / **Date: 8/01**	**Prepared by:** **A.M. Galleni** / **Figure 4**



SITE VICINITY MAP

Eagle Gas
4301 San Leandro
Oakland, California

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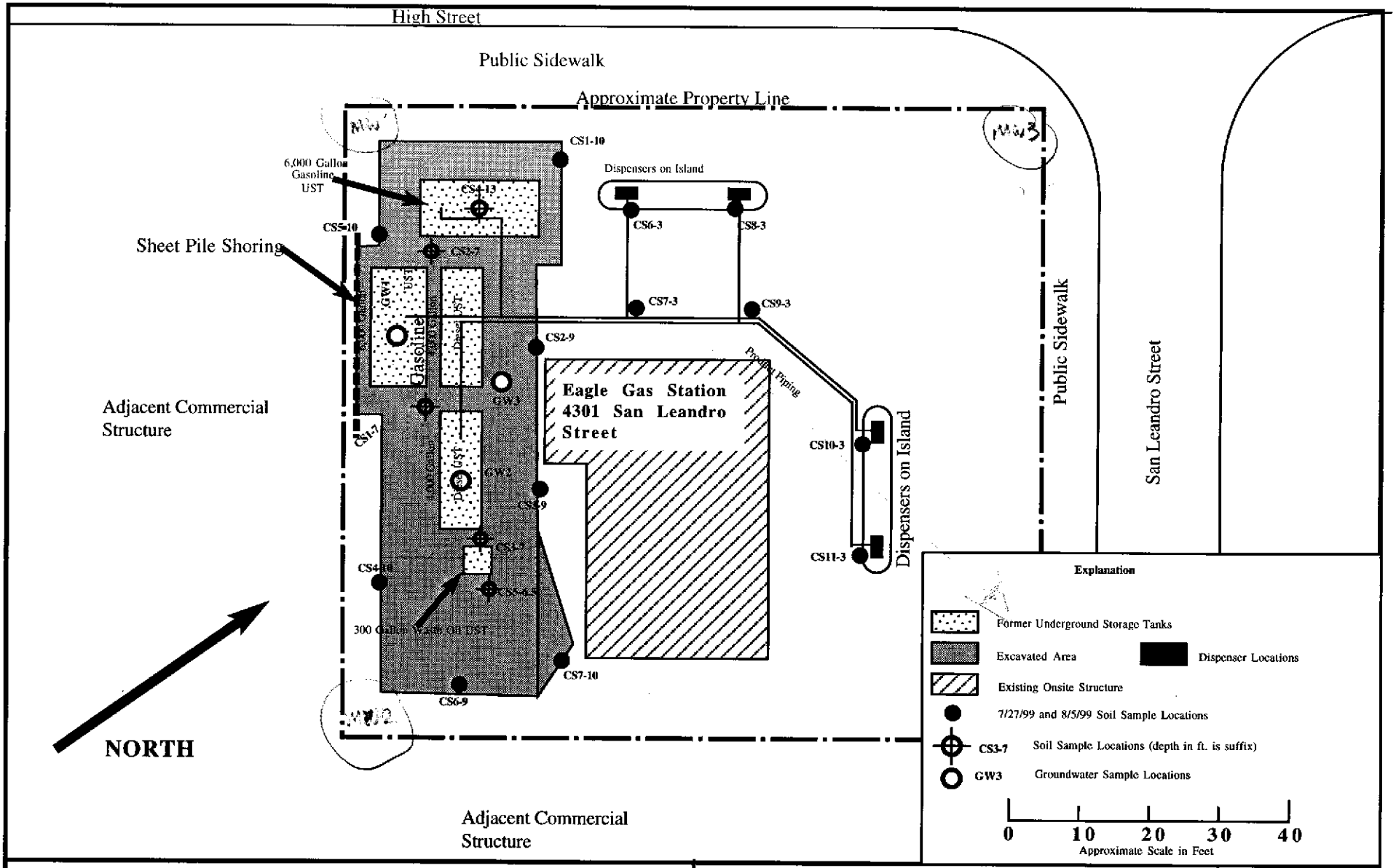
Project No.	Date	Figure
ZP046A	**8/01**	**5**



CLEARWATER GROUP **520 Third Street, Suite 104** **Oakland, California**	**Historical Sample Locations** **Eagle Gas** **4301 San Leandro** **Oakland, California**
Project No. ZP046A | **Date Revised: 10/30/00**	**Drawn by: P.Jones** **Revised By: J.Fox** | **Figure A**

TABLE 1
GROUNDWATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS
Eagle Gas
4301 San Leandro Street
Oakland, California

Sample ID	Sampling Date	TOC (feet)	DTW (feet)	GWE (feet)	SPH (feet)	TPHd (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	EDB (µg/L)	1,2-DCA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-1	10/3/00	18.37	8.96	9.41	0	460	93,000	<500	<500	<500	<500	130,000	<10,000	<10,000	<10,000	<10,000	<10,000	<2,000
	10/27/00	18.37	7.27	11.10	0	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/01	18.37	7.60	10.77	0	1,600*	51,000	270	<100	<100	<100	77,000	<5,000	<5,000	<5,000	<5,000	<5,000	<20,000
	5/8/01	18.37	7.50	10.87	0	470*	36,000*	<100	<100	<100	<100	15,000	<5,000	<5,000	<5,000	<5,000	<5,000	<20,000
MW-2	10/3/00	20.28	20.26	0.02	0	210	250,000	<1,250	<1,250	<1,250	<1,250	400,000	<25,000	<25,000	<25,000	<25,000	<25,000	<100,000
	10/27/00	20.28	13.88	6.40	0	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/01	20.28	12.10	8.18	0	6,000*	740,000	3,800	<500	940	1,600	1,000,000	<50,000	<50,000	<50,000	<50,000	<50,000	<200,000
	5/8/01	20.28	12.05	8.23	0	2,100*	140,000	2,800	<250	780	640	840,000	<50,000	<50,000	<50,000	<50,000	<50,000	<200,000
MW-3	10/10/00	18.98	---	---	0	120	83,000	<500	<500	<500	<500	33,000	<2,500	<2,500	<2,500	<2,500	<2,500	<10,000
	10/27/00	18.98	18.75	0.23	0	---	---	---	---	---	---	---	---	---	---	---	---	---
	1/26/01	18.98	13.38	5.60	0	900*	230,000	930	<500	<500	<500	330,000	<25,000	<25,000	<25,000	<25,000	<25,000	<100,000
	5/8/01	18.98	11.82	7.16	0	1,100*	95,000	840	<250	<250	<250	390,000	<12,500	<12,500	<12,500	<12,500	<12,500	<50,000

Copb naphthalene

NOTES:

TOC	Top of well casing referenced to mean sea level
DTW	Depth to water
GWE	Groundwater elevation
SPH	Separate phase hydrocarbons (floating product); no samples taken
TPHd	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified)
TPHg	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified)
BTEX	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020 (modified)
MTBE	Methyl tert-Butyl Ether by EPA Method 8260B
EDB	1,2-Dibromoethane by EPA Method 8260B
1,2-DCA	1,2-Dichloroethane by EPA Method 8260B
DIPE	Diisopropyl Ether by EPA Method 8260B
ETBE	Ethyl-t-butyl Ether by EPA Method 8260B
TAME	tert-Amyl Methyl Ether by EPA Method 8260B
TBA	tert-Butanol by EPA Method 8260B
(µg/L)	Micrograms per liter: approximately wqual to parts per billion
<#	Not detected in quantities greater than indicated method detection limit
---	not tested / no data available
*	Laboratory note: "Results within quantitation range; chromatogrpahic pattern not typical of fuel."

TABLE 2
SOIL SAMPLE ANALYTICAL RESULTS
Eagle Gas
4301 San Leandro Street
Oakland, California

Sample ID	Sampling Date	TPHg (mg/Kg)	TPHd (mg/Kg)	B (mg/Kg)	T (mg/Kg)	E (mg/Kg)	X (mg/Kg)	MTBE (mg/Kg)	DIPE (mg/Kg)	ETBE (mg/Kg)	TAME (mg/Kg)	TBA (mg/Kg)	Methanol (mg/Kg)	Ethanol (mg/Kg)	1,2-DCA (mg/Kg)	EDB (mg/Kg)
CS1-7	4/21/99	770	840	8.9	4.8	5.8	16	86	---	---	---	---	---	---	---	---
CS2-7	4/21/99	880	1,900	3.3	5.7	15	45	16	---	---	---	---	---	---	---	---
CS3-7	4/22/99	1,600	780	4.3	110	42	220	92	---	---	---	---	---	---	---	---
CS5-6.5	4/22/99	20	33	0.22	1.8	0.54	3	52	---	---	---	---	---	---	---	---
Stockpile 1	4/22/99	610	770	0.28	4.7	6.9	36	ND	---	---	---	---	---	---	---	---
Stockpile 2	4/22/99	480	670	0.23	2.3	3.9	18	ND	---	---	---	---	---	---	---	---
CS4-13	4/22/00	ND	ND	ND	ND	ND	ND	0.08	---	---	---	---	---	---	---	---
CS6-3	8/5/99	4,300	1,300	11	130	82	420	70	---	---	---	---	---	---	---	---
CS7-3	8/5/99	50	200	nd	2.4	0.85	4	14	---	---	---	---	---	---	---	---
CS8-3	8/5/99	250	3,400	0.32	0.72	0.81	1	3.8	---	---	---	---	---	---	---	---
CS9-3	8/5/99	380	1,900	ND	ND	ND	ND	9.5	---	---	---	---	---	---	---	---
CS10-3	8/5/99	930	350	ND	78	17	99	310	---	---	---	---	---	---	---	---
CS11-3	8/5/99	1,400	5,200	3.2	13	25	90	62	---	---	---	---	---	---	---	---
MW1-10' bgs	9/26/00	310	87	0.062	0.022	1.3	3.4	6.9	<0.0050	<0.0050	0.019	2.9	<5.0	<0.050	<0.0050	<0.0050
MW2-10' bgs	9/26/00	630	210	0.053	0.052	2.0	14	1.0	<0.050	<0.050	<0.050	3.5	<10	<1.0	<0.050	<0.050
MW3-10' bgs	9/26/00	32	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	4.5	<0.0050	<0.0050	0.043	0.58	<1.0	<0.050	<0.0050	<0.0050

NOTES:

TPHd	Total petroleum hydrocarbons as diesel by EPA Method 8015 (modified)
TPHg	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified)
BTEX	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8260 (modified)
MTBE	Methyl tert-Butyl Ether by EPA Method 8260B
ETBE	Ethyl-tert-Butyl Ether by EPA 8260B
TAME	tert-Amyl Methyl Ether by EPA 8260B
TBA	tert-Butanol by EPA 8260B
DIPE	Diisopropyl Ether by EPA 8260B
---	Not Tested / No Data Available
ND	not detected above laboratory detection limits

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Soil Borehole Drilling, Monitoring Well Installation and Development, and Groundwater Sampling Field Procedures

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Drilling and Soil Sampling

Permits, Site Safety Plan, Utility Clearance

Clearwater Group (Clearwater) obtains all the required permits, unless otherwise contractually directed. Clearwater prepares a site specific Site Safety Plan detailing site hazards, site safety and control, decontamination procedures, and emergency response procedures to be employed throughout the defined phase of work. At least 48 hours prior to drilling, Underground Service Alert (USA) or an equivalent agency is notified of the planned work. Clearwater, attempts to locate all underground and above ground utilities by site inspection (in conjunction with its' subcontractors and knowledgeable site managers, if available), and review of site as-built drawings. Clearwater may employ a private, professional utility locator to refine the site utility inspection.

Drilling Equipment

All soil borings are drilled using a truck-mounted hollow-stem auger drill rig, unless site conditions warrant a different drilling method. Subsurface conditions permitting, the first five feet of each boring is advanced using a hand-auger or post-hole digger. All drilling equipment is inspected daily and maintained in safe working condition by the operator. All down-hole drilling equipment is steam cleaned prior to arriving on site. Working components of the drill rig near the borehole, as well as augers and drill rods are thoroughly steam cleaned between each boring location. All Clearwater drilling and sampling methods are consistent with ASTM Method D-1452-80, and local, state and federal regulations.

Soil Sampling and Lithologic Description

Whenever possible, the first Clearwater boring to be drilled at a site is continuously cored to obtain a complete lithologic description. Otherwise, soil samples are typically collected every 5 feet to the total depth explored, using brass tubes fitted in a California-modified split spoon sampler. If copper or zinc contamination is the subject of the investigation, stainless steel liners are used instead of brass. Additional soil samples may be collected based upon significant changes in lithology or in areas of obvious soil contamination. During soil sample collection, the split spoon sampler is driven 18 to 24 inches past the lead auger by a 140-pound hammer falling a minimum of 30 inches. The number of blows necessary to drive the sampler and the amount of soil recovered is recorded on the Field Exploratory Soil Boring Log. The soil sampler and liners are cleaned with an Alconox® solution and rinsed with tap water prior to each sampling event. New liners are used whenever a soil sample may be retained for laboratory analysis.

Soil samples selected for laboratory analysis are sealed on both ends with teflon tape and plastic end caps. The samples are labeled, documented on a chain-of-custody form and placed in a cooler for transport to a state certified analytical laboratory. Soil contained in remaining liners is removed for lithologic descriptions (according to the Unified Soil Classification System). Additional soil is screened for organic vapors by placing approximately 30 grams of soil in a sealed plastic bag or a glass jar sealed with aluminum foil. The bag or jar is left undisturbed for approximately 15 minutes, in the sun if possible. The head space in the bag is accessed in a manner to minimize entry of outside air, and is tested for total organic vapor using a calibrated organic vapor meter (OVM). The results of the field screening are noted with the lithologic descriptions on the Field Exploratory Soil Boring Log.

On encountering an impermeable (clayey) layer three feet or more in thickness below a saturated permeable layer, where the impermeable layer is considered to be a possible confining layer for an underlying aquifer, drilling is halted until a decision to proceed is obtained from the project manager. This process minimizes the chance of introducing contamination to an underlying, clean aquifer.

Soil Waste Managment

Soil cuttings are stockpiled on and covered with plastic sheeting to control runoff, or contained in 55-gallon D.O.T.-approved drums on site. Waste soil is sampled to chemically profile it for disposable, and hauled by a licensed waste hauler to an appropriate landfill. All waste stored on site is properly labeled at the time of production.

Soil Boring Abandonment

Soil borings which are not to be converted into monitoring wells are sealed to the ground surface using neat cement or sand-cement slurry in accordance with federal, state and local regulations. Native soil may be used to fill the top two to three feet for cosmetic purposes, as permitted.

Monitoring Well Installation

Well Casing, Screen and Filter Pack Construction

All well construction is performed in accordance with Department of Water Resources "California Well Standards" and all requirements of local oversight agencies. Soil borings to be converted into single-cased monitoring wells are a minimum of eight inches in diameter for 2-inch diameter wells and a minimum of ten inches in diameter for 4-inch diameter wells. Monitoring wells are constructed with schedule 40, threaded, polyvinyl chloride (PVC) casing unless site geochemistry or contamination necessitates an alternative material. The wells are constructed with factory-slotted screen and threaded end caps.

The screened interval is placed such that it extends approximately ten feet into the water bearing zone, and at least five feet above the expected maximum water level. The screened interval may extend less than five feet above the maximum water level, only to prevent intersection of the screened interval with the top of the confining layer of a confined aquifer, or where the water table is too shallow to allow this construction.

A graded sand filter pack is placed in the annular space across the screened interval and extended approximately one to two feet above the screen, as site conditions permit, so as to prevent extension of the sand pack into an overlying water-bearing unit. The well screen slot size is the maximum size capable of retaining 90% of the filter pack. Typically, 0.010-inch screen is used where the formation is predominantly clay and/or silt or poorly-graded fine sand. 0.020-inch screen is used where the formation is predominantly well-graded or medium to coarse sand and/or gravel.

The filter pack grade (mean grain size) is selected according to native sediment type as follows: a) for poorly graded fine sand or silt/clay - 4 times the 70% retained grain size of the formation b) for medium to coarse sand, gravel or well graded sediments - 6 times the 70% retained grain size. Since results of particle size analysis are not always available, Clearwater often selects screen size and filter pack on the basis of general site stratigraphy, and specifically the finest significantly thick layer of sediment to be screened. Commonly selected grades are Lone Star® 3, 2/12 or 2/16 (or equivalent) with 0.020-inch slotted screen and Lone Star® 1/20 with 0.010-inch slotted screen.

Well Seal and Completion

A minimum two foot seal of bentonite is placed above the sand pack. The bentonite seal is hydrated by either formation water or potable water. Neat cement or a cement/bentonite grout mixture seals the remaining annular space to the surface. If bentonite is used in the grout mixture, it does not exceed 5% by weight. The grout is placed using a tremie pipe, if the top of the bentonite is more than 20 feet below grade, or if water is present in the boring above the bentonite seal. A watertight locking cap and protective traffic-rated vault box is installed on top of each well. Well construction details are presented on the Field Exploratory Soil Boring Log. Following completion of a well, Clearwater completes and submits, or ensures that the driller has sufficient information to complete and submit, the state-required Well Completion Report or equivalent document.

Well Development

All newly installed wells are developed prior to sampling to remove fine grained sediments from the well and stabilize the filter pack and the disturbed aquifer materials. Development takes place prior to or at least 24 hours after setting the seal on the well, unless otherwise directed by a local oversight agency. Well development consists of surging with a surge block and removing water from the well with either a pump or bailer, until the well is free of sediment, or until at least 10 well casing volumes have been removed. Depth to bottom is measured to determine casing volume. If the well is sampled immediately following development, temperature, pH, specific conductance and turbidity (qualitative) are monitored during well development (see section "Groundwater Sampling"). All development equipment is cleaned prior to use and between wells with an Alconox® solution, then rinsed in potable water. All data collected during development are recorded on the Well Development Data Sheet and, if necessary, the Purging Data Sheet.

Well Surveying

All well elevations are surveyed at the north side of the top of casing to the nearest ±0.01 foot. The exact survey point (at the center of the survey rod or, if the casing stub is uneven, the point of contact between casing and rod) is clearly marked and maintained on the casing rim. Elevations are referenced either to mean sea level or to a project datum. A project datum is typically chosen so as to minimize the possibility of its' later disturbance. For instance, fire hydrants are commonly selected. Where required, the wells are surveyed by a licensed land surveyor, relative to mean sea level.

Groundwater Sampling

Groundwater Monitoring

Prior to beginning, a decontamination area is established. Decontamination procedures consist of scrubbing downhole equipment in an Alconox® solution wash (wash solution is pumped through any purging pumps used), and rinsing in a first rinse of potable water and a second rinse of potable water or deionized water if the latter is required. Any non-dedicated down hole equipment is decontaminated prior to use.

Prior to purging and sampling a well, the static water level is measured to the nearest 0.01 feet with an electronic water sounder. Depth to bottom is typically measured once per year, at the request of the project manager, and during Clearwater's first visit to a site. If historical analytical data are not available, with which to establish a reliable order of increasing well contamination, the water sounder and tape will be decontaminated between each well. If floating separate-phase hydrocarbons (SPH) are suspected or observed, SPH is collected using a clear, open-ended product bailer, and the thickness is measured to the nearest 0.01 feet in the bailer. SPH may alternatively be measured with an electronic interface probe. Any monitoring well containing a measurable thickness of SPH before or during purging is not additionally purged and no sample is collected from that well. Wells containing a hydrocarbon sheen are sampled unless otherwise specified by the project manager. Field observations such as well integrity as well as water level measurements and floating product thicknesses are noted on the Gauging Data/Purge Calculations form.

Well Purging

Each monitoring well to be sampled is purged using either a PVC bailer or a submersible pump. Physical parameters (pH, temperature and conductivity) of the purge water are monitored during purging activities to assess if the water sample collected is representative of the aquifer. If required, parameters such as dissolved oxygen, turbidity, salinity etc. are also measured. Samples are considered representative if parameter stability is achieved. Stability is defined as a change of less than 0.25 pH units, less than 10% change in conductivity in micro mhos, and less than 1.0 degree centigrade (1.8 degrees Fahrenheit) change in temperature. Parameters are measured in a discreet sample decanted from the bailer separately from the rest of the purge water. Parameters are measured at least four times during purging; initially, and at volume intervals of one well volume. Purging continues until three well casing volumes have been removed or until the well completely dewaters. Wells which dewater or demonstrate a slow recharge, may be sampled after fewer than three well volumes have been removed. Well purging information is recorded on the Purge Data sheet. All meters used to measure parameters are calibrated daily. Purge water is sealed, labeled, and stored on site in D.O.T.-approved 55-gallon drums. After being chemically profiled, the water is removed to an appropriate disposal facility by a licensed waste hauler.

Groundwater Sample Collection

Groundwater samples are collected immediately after purging or, if purging rate exceeds well recharge rate, when the well has recharged to at least 80% of its static water level. If recharge is extremely slow, the well is allowed to recharge for at least two hours, if practicable, or until sufficient volume has accumulated for sampling. The well is sampled within 24 hours of purging or repurged. Samples are collected using polyethylene bailers, either disposable or dedicated to the well. Samples being analyzed for compounds most sensitive to volatilization are collected first. Water samples are placed in appropriate laboratory-supplied containers, labeled, documented on a chain of custody form and placed on ice in a cooler for transport to a state-certified analytical laboratory. Analytical detection limits match or surpass standards required by relevant local or regional guidelines.

Quality Assurance Procedures

To prevent contamination of the samples, Clearwater personnel adhere to the following procedures in the field:

- A new, clean pair of latex gloves are put on prior to sampling each well.
- Wells are gauged, purged and groundwater samples are collected in the expected order of increasing degree of contamination based on historical analytical results.
- All purging equipment will be thoroughly decontaminated between each well, using the procedures previously described at the beginning of this section.
- During sample collection for volatile organic analysis, the amount of air passing through the sample is minimized. This helps prevent the air from stripping the volatiles from the water. Sample bottles are filled by slowly running the sample down the side of the bottle until there is a convex meniscus over the mouth of the bottle. The lid is carefully screwed onto the bottle such that no air bubbles are present within the bottle. If a bubble is present, the cap is removed and additional water is added to the sample container. After resealing the sample container, if bubbles still are present inside, the sample container is discarded and the procedure is repeated with a new container.

Laboratory and field handling procedures may be monitored, if required by the client or regulators, by including quality control (QC) samples for analysis with the groundwater samples. Examples of different types of QC samples are as follows:

- Trip blanks are prepared at the analytical laboratory by laboratory personnel to check field handling procedures. Trip blanks are transported to the project site in the same manner as the laboratory-supplied sample containers to be filled. They are not opened, and are returned to the laboratory with the samples collected. Trip blanks are analyzed for purgable organic compounds.
- Equipment blanks are prepared in the field to determine if decontamination of field sampling equipment has been effective. The sampling equipment used to collect the groundwater samples is rinsed with distilled water which is then decanted into laboratory-supplied containers. The equipment blanks are transported to the laboratory, and are analyzed for the same chemical constituents as the samples collected at the site.
- Duplicates are collected at the same time that the standard groundwater samples are being collected and are analyzed for the same compounds in order to check the reproducibility of laboratory data. They are typically only collected from one well per sampling event. The duplicate is assigned an identification number that will not associate it with the source well.

Generally, trip blanks and field blanks check field handling and transportation procedures. Duplicates check laboratory procedures. The configuration of QC samples is determined by Clearwater depending on site conditions and regulatory requirements.

ZP046A

FILE

Fielding

CLEARWATER GROUP, INC.

FIELDWORK REQUEST FORM

Project Number:	ZP046A
Project Address:	Eagle Gas, 4301 San Leandro at High Street, Oakland CA
Date of Work Request:	7-May-01
Type of Field Work:	Guage, purge and sample 3 wells. Drum for purge water storage already on site.
	order 1, 3, 2
Lab:	Entech
Analyses:	TPHg, BTEX 8015/8020 3 VOA TPHd 8015 1 liter amber 5 Fuel Oxygenates & Lead Scavengers: 1,2-DCA, 1,2-DBA 8260 3 VOA
Requested by:	Drew Galleni
Attachments:	Tables: Site Map: Other: 1
Field Geologist:	Scott Robertson / Ben Pink
Date Scheduled:	Any time in May (the sooner the better). Is May 8th possible?

CLEARWATER GROUP, INC.

520 3rd Street, Suite 104 Oakland CA, 94607
Phone: (510)893-5160 Fax: (510) 893-5947

WELL GAUGING/PURGING CALCULATIONS DATA SHEET

*: 5/8/01

Date	Job No.	Location
5-7	ZP046A	Eagle Gas Oakland

Tech(s): BP

Drums on Site @TOA — Soil: 0 Water: 1

Drums on Site @ TOD — Soil: 0 Water: 1

Well No	Diameter (in)	DTB (ft)	DTW (ft)	ST (ft)	CV (gal)	PV (gal)	SPL (ft)	Notes
1	2	23	7.50	15.5	2.48	7.44		
2	2	25	12.05	12.95	2.07	6.21		
3	2	25	11.82	13.18	2.11	6.33		

Explanation:
DTB = Depth to Bottom
DTW = Depth to Water
ST = Saturated Thickness (DTB-DTW)
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPL = Thickness of Separate Phase Liquid

Conversion Factors (cf)
2-inch diameter well cf=0.16 gal/ft
4-inch diameter well cf=0.65 gal/ft
6-inch diameter well cf=1.44 gal/ft

WELL PURGING DATA 4/6/06 SHEET 1 OF 1

Job No.: ZP0460 Location: Eagle Gas (x1,000) Date: 4/7 Tech: BP

MW-1

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-1		2	79.8	1.02	7.96
Calc. purge		4	73.1	0.88	7.40
volume		6	73.0	0.88	7.36
28		8	72.4	0.90	7.51

COMMENTS: color, turbidity, recharge, etc.
Olive, moderate, good

Sample time: 1325
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010
Other: Lead Scavengers fuel oxys
Sampling Method:
Dedicated / Disposable bailer
Purging Method:
PVC bailer / Pump

MW-3

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-3		1.5	78.7	0.92	7.65
Calc. purge		3	78.6	0.94	7.69
volume		4.5	77.7	0.94	7.41
6.33		6+	78.8	0.96	7.53

COMMENTS: color, turbidity, recharge, etc.
Olive, high, good

Sample time: 1400
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010
Other: Lead Scavengers fuel oxys
Sampling Method:
Dedicated / Disposable bailer
Purging Method:
PVC bailer / Pump

MW-2

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH
MW-2		1.5	82.1	1.21	7.30
Calc. purge		3	81.7	0.99	7.21
volume		4.5	80.9	0.99	7.15
6.21		6+	79.8	0.98	7.05

COMMENTS: color, turbidity, recharge, etc.
Olive, low, good

Sample time: 1430
Sample for: (circle)
TPHg TPHd TPHmo
BTEX MTBE 8010 fuel oxys
Other: Lead Scavengers
Sampling Method:
Dedicated / Disposable bailer
Purging Method:
PVC bailer / Pump

CLEARWATER GROUP INC., 520 Third St., Ste. 104, Oakland, California 94607
Phone: (510) 893-5160 Fax: (510) 893-5947

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Drew Galleni	Phone No.: 510 8935160	Purchase Order No.:	Send Invoice to (If Different)	Phone
Company Name: Clearwater Group	Fax No.: 510 8935947	Project Number: ZP046A	Company	
Mailing Address: 520 3rd St. Suite 104		Project Name: EAGLE GAS	Billing Address (If Different)	
City: Oakland	State: CA Zip: 94607	Project Location: Oakland	City:	State Zip

Sampler: Ben Pink

Date: 5-7-01

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix	Composite	Grab	Containers	Preservative
MW-1		5-7	1325	W			7	
MW-2			1430				7	
MW-3			1400				7	

Analyses: Volatile Organics by GCMS: 624 ☐ / Fuel Oxygenates by 8240 ☐ / MTBE by 8260B ☐ / Freon 113 ☐ / 8260B ☐ / Pesticides-8081 ☐ / PCBs - 8082 ☐ / Halogenated or Aromatic Volatiles: 601/8010 ☐ / F113 ☐ / 8021 ☐ / TPH as Gas/BTEX ☐ / TPH as Gas/BTEX/MTBE ☐ / 602/8020 ☐ / Base/Neutral/Acid Organics 8270 ☐ / 8270-SIMS ☐ / Fuel Scan / Diesel / w/ Si-gel Standard Cleanup ☐ / w/ Si-gel Column Cleanup ☐ / 1,2 DCA, EDB (8260) / TRPH ☐ / Oil & Grease ☐ / THM (502.2) / Metals - Circle Below: Total ☐ Dissolved ☐

Remarks

Relinquished by:	Received by:	Date:	Time:
Ben Pink	C. Thom	5/8/01	1545
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

CLEARWATER GROUP, INC.

FILE

ZP046A

Field No.

FIELDWORK REQUEST FORM

Project Number:	ZP046A
Project Address:	Eagle Gas, 4301 San Leandro at High Street, Oakland CA
Date of Work Request:	30-May-01
Type of Field Work:	Purge and sample 1 well: MW-2. Drum for purge water storage already on site.
	DTW 12.95
	(12.05)(.16) = (1.93)(3) = 5.78 pv
	sample time 1000
Lab:	Entech
Analyses:	Polynuclear Aromatic Compounds PNA by GCMS, EPA 8270 Two 1 L Amber Bottles
Requested by:	Drew Galleni
Attachments:	Tables: Site Map: Other: 1
Field Geologist:	Ben Pink
Date Scheduled:	ASAP

CLEARWATER
GROUP, INC.

520 3rd Street, Suite 104 Oakland CA, 94607
Phone: (510)893-5160 Fax: (510) 893-5947

WELL GAUGING/PURGING CALCULATIONS DATA SHEET

* : 5/8/01

Date	Job No.	Location
5-7	ZP046A	Eagle Gas Oakland

Tech(s): BP

Drums on Site @TOA — Soil: 0 Water: 1

Drums on Site @ TOD — Soil: [redacted] Water: 1

Well No	Diameter (in)	DTB (ft)	DTW (ft)	ST (ft)	CV (gal)	PV (gal)	SPL (ft)	Notes
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Explanation:
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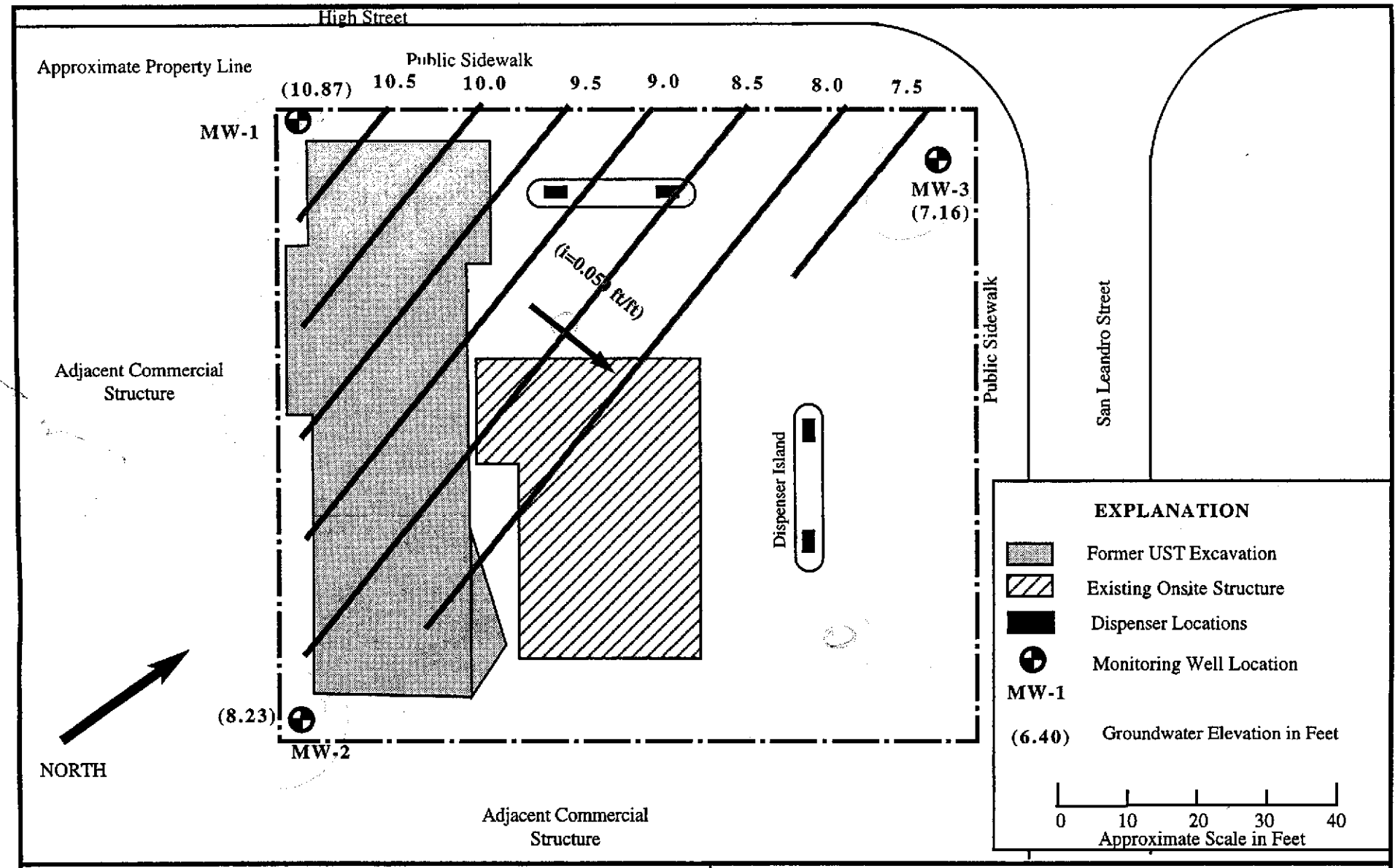
CV = Casing Volume (ST x cf)
PV = Purge Volume (standard 3 x CV, well development 10 x CV)
SPL = Thickness of Separate Phase Liquid

Conversion Factors (cf)
2-inch diameter well cf=0.16 gal/ft
4-inch diameter well cf=0.65 gal/ft
6-inch diameter well cf=1.44 gal/ft



CLEARWATER GROUP **520 Third Street, Suite 104** **Oakland, California**	**Groundwater Elevation Map - 5/08/01** **Eagle Gas, 4301 San Leandro Street** **Oakland, California**

Project No. ZP 046A	**Date:5/01**	**Prepared by:** **Andrew M. Galleni**	**Figure 3**

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Drew Gallenì	Phone No.: 510 893 5160	Purchase Order No.:	Send Invoice to (if Different)	Phone
Company Name: Clearwater Group	Fax No.: 510 893 5947	Project Number: ZP0406A	Company	
Mailing Address: 520 3rd St. Suite 104		Project Name: Eagle Gas	Billing Address (if Different)	
City: Oakland	State: CA Zip: 94607	Project Location: Oakland	City:	State Zip

Sampler: Ben Pink

Date: 5-31-01

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix	Composite	Grab	Containers	Preservative
MW-2		5/31	1000	W			2	HCl

Preservative / Analysis Requested:
- Volatile Organics by GCMS: 624 ☐ 8240 ☐ Freon 113 ☐ 8260B ☐
- Fuel Oxygenates by 8260B ☐ MTBE by 8260B ☐
- Pesticides-8081 ☐ PCBs - 8082 ☐
- Halogenated or Aromatic Volatiles: 601/8010 ☐ F113 ☐ 602/8020 ☐ 8021 ☐
- TPH as Gas/BTEX ☐ TPH as Gas/BTEX/MTBE ☐
- Base/Neutral/Acid Organics 8270 ☐ 8270-SIMS ☐
- Fuel Scan
- Diesel ☐ w/ Si-gel Standard Cleanup ☐ w/ Si-gel Column Cleanup ☐ X
- PNAs 8270 (GCMS)
- TRPH ☐ Oil & Grease ☐
- THM (502.2)
- Metals - Circle Below Total ☐ Dissolved ☐

Remarks

Relinquished by:	Received by:	Date:	Time:
Ben Pink	[illegible] SOR	5/31	1100
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

May 15, 2001

Andrew Galleni
Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607

Order: 25486
Project Name: Eagle Gas
Project Number: ZP046A
Project Notes:

Date Collected: 5/7/01
Date Received: 5/8/01
P.O. Number: ZP046A

On May 08, 2001, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	Gas/BTEX	EPA 8015 MOD. (Purgeable)
		EPA 8020
	Oxygenates+1,2DCA+EDB	EPA 8260B
	TPH as Diesel w/ Si-Gel Std	EPA 8015 MOD. (Extractable)

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,

Michelle L. Anderson
Lab Director

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607
Attn: Andrew Galleni

Date: 05/15/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-001 **Client Sample ID:** MW-1
Sample Time: 1:25 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	470	x	1	50	50	µg/L	5/11/01	5/15/01	DW4008A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	61	53 - 114

Comment: TPH-Diesel extraction performed with silica gel cleanup.

Order ID: 25486 **Lab Sample ID:** 25486-002 **Client Sample ID:** MW-2
Sample Time: 2:30 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	2100	x	1	50	50	µg/L	5/11/01	5/15/01	DW4008A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	73	53 - 114

Comment: TPH-Diesel extraction performed with silica gel cleanup.

Order ID: 25486 **Lab Sample ID:** 25486-003 **Client Sample ID:** MW-3
Sample Time: 2:00 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	1100	x	1	50	50	µg/L	5/11/01	5/15/01	DW4008A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	106	53 - 114

Comment: TPH-Diesel extraction performed with silica gel cleanup.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607
Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-001 **Client Sample ID:** MW-1

Sample Time: 1:25 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		200	0.5	100	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Toluene	ND		200	0.5	100	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Ethyl Benzene	ND		200	0.5	100	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Xylenes, Total	ND		200	0.5	100	µg/L	N/A	5/10/01	WGC42006B	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	98	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	36000	x	200	50	10000	µg/L	N/A	5/10/01	WGC42006B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	103	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

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Clearwater Group, Inc.
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Oakland, CA 94607
Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-002 **Client Sample ID:** MW-2

Sample Time: 2:30 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	2800		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Toluene	ND		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Ethyl Benzene	780		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Xylenes, Total	640		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	97	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	140000		500	50	25000	µg/L	N/A	5/10/01	WGC42006B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	104	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607
Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-003 **Client Sample ID:** MW-3

Sample Time: 2:00 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	840		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Toluene	ND		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Ethyl Benzene	ND		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020
Xylenes, Total	ND		500	0.5	250	µg/L	N/A	5/10/01	WGC42006B	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	98	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	95000	x	500	50	25000	µg/L	N/A	5/10/01	WGC42006B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
aaa-Trifluorotoluene	106	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

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Clearwater Group, Inc.
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Oakland, CA 94607
Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-001 **Client Sample ID:** MW-1

Sample Time: 1:25 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,2-Dibromoethane (EDB)	ND		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
1,2-Dichloroethane	ND		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
Diisopropyl Ether	ND		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
Ethyl-t-butyl Ether	ND		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
Methyl-t-butyl Ether	150000		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Amyl Methyl Ether	ND		1000	5	5000	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Butanol	ND		1000	20	20000	µg/L	5/10/01	WMS31007	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	108	65 - 135
Dibromofluoromethane	101	57 - 139
Toluene-d8	106	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-002 **Client Sample ID:** MW-2

Sample Time: 2:30 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,2-Dibromoethane (EDB)	ND		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
1,2-Dichloroethane	ND		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
Diisopropyl Ether	ND		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
Ethyl-t-butyl Ether	ND		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
Methyl-t-butyl Ether	840000		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Amyl Methyl Ether	ND		10000	5	50000	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Butanol	ND		10000	20	200000	µg/L	5/10/01	WMS31007	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	107	65 - 135
Dibromofluoromethane	101	57 - 139
Toluene-d8	106	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607
Attn: Andrew Galleni

Date: 5/14/01
Date Received: 5/8/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25486 **Lab Sample ID:** 25486-003 **Client Sample ID:** MW-3

Sample Time: 2:00 PM **Sample Date:** 5/7/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,2-Dibromoethane (EDB)	ND		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
1,2-Dichloroethane	ND		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
Diisopropyl Ether	ND		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
Ethyl-t-butyl Ether	ND		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
Methyl-t-butyl Ether	390000		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Amyl Methyl Ether	ND		2500	5	12500	µg/L	5/10/01	WMS31007	EPA 8260B
tert-Butanol	ND		2500	20	50000	µg/L	5/10/01	WMS31007	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	107	65 - 135
Dibromofluoromethane	101	57 - 139
Toluene-d8	106	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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STANDARD LAB QUALIFIERS (FLAGS)

All Entech lab reports now reference standard lab qualifiers. These qualifiers are noted in the adjacent column to the analytical result and are adapted from the U.S. EPA CLP program. The current qualifier list is as follows:

Qualifier (Flag)	Description
U	Compound was analyzed for but not detected
J	Estimated value for tentatively identified compounds or if result is below PQL but above MDL
N	Presumptive evidence of a compound (for Tentatively Identified Compounds)
B	Analyte is found in the associated Method Blank
E	Compounds whose concentrations exceed the upper level of the calibration range
D	Multiple dilutions reported for analysis; discrepancies between analytes may be due to dilution
X	Results within quantitation range; chromatographic pattern not typical of fuel

Entech Analytical Labs, Inc.

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Quality Control Results Summary

QC Batch #: DW4008A
Matrix: Liquid
Units: µg/L
Date Analyzed: 5/15/01

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: TPH as Diesel w/ Si-Gel Std											
TPH as Diesel	EPA 8015 M	ND		1000		847.34	LCS	84.7			50.0 - 130.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		96			53 - 114					
Test: TPH as Diesel w/ Si-Gel Std											
TPH as Diesel	EPA 8015 M	ND		1000		674.32	LCSD	67.4	22.74	30.00	50.0 - 130.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		73			53 - 114					

Entech Analytical Labs, Inc.

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Quality Control Results Summary

QC Batch #: WGC42006B
Matrix: Liquid
Units: µg/L
Date Analyzed: 5/10/01

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		561		443.684	LCS	79.1			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			100			65 - 135					
Test: BTEX											
Benzene	EPA 8020	ND		6.2		5.799	LCS	93.5			65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		7.8		6.995	LCS	89.7			65.0 - 135.0
Toluene	EPA 8020	ND		35.8		33.709	LCS	94.2			65.0 - 135.0
Xylenes, total	EPA 8020	ND		43		37.159	LCS	86.4			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			101			65 - 135					
Test: MTBE by EPA 8020											
Methyl-t-butyl Ether	EPA 8020	ND		52.8		45.317	LCS	85.8			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			101			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		561		452.434	LCSD	80.6	1.95	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			101			65 - 135					
Test: BTEX											
Benzene	EPA 8020	ND		6.2		5.795	LCSD	93.5	0.07	25.00	65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		7.8		6.855	LCSD	87.9	2.02	25.00	65.0 - 135.0
Toluene	EPA 8020	ND		35.8		33.355	LCSD	93.2	1.06	25.00	65.0 - 135.0
Xylenes, total	EPA 8020	ND		43		36.677	LCSD	85.3	1.31	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			99			65 - 135					
Test: MTBE by EPA 8020											
Methyl-t-butyl Ether	EPA 8020	ND		52.8		46.413	LCSD	87.9	2.39	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
aaa-Trifluorotoluene			99			65 - 135					

Entech Analytical Labs, Inc.

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Quality Control Results Summary

QC Batch #: WMS31007 **Units:** µg/L
Matrix: Liquid **Date Analyzed:** 5/10/01

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: EPA 624											
1,1-Dichloroethene	EPA 624	ND		20		19.18	LCS	95.9			65.0 - 135.0
Benzene	EPA 624	ND		20		21.05	LCS	105.3			65.0 - 135.0
Chlorobenzene	EPA 624	ND		20		19.40	LCS	97.0			65.0 - 135.0
Methyl-t-butyl Ether	EPA 624			20		15.70	LCS	78.5			65.0 - 135.0
Toluene	EPA 624	ND		20		19.94	LCS	99.7			65.0 - 135.0
Trichloroethene	EPA 624	ND		20		21.05	LCS	105.3			65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103	65 - 135
Dibromofluoromethane	100	57 - 139
Toluene-d8	104	65 - 135

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: EPA 624											
1,1-Dichloroethene	EPA 624	ND		20		19.03	LCSD	95.2	0.79	25.00	65.0 - 135.0
Benzene	EPA 624	ND		20		20.65	LCSD	103.2	1.92	25.00	65.0 - 135.0
Chlorobenzene	EPA 624	ND		20		19.42	LCSD	97.1	0.10	25.00	65.0 - 135.0
Methyl-t-butyl Ether	EPA 624			20		16.11	LCSD	80.5	2.58	25.00	65.0 - 135.0
Toluene	EPA 624	ND		20		19.86	LCSD	99.3	0.40	25.00	65.0 - 135.0
Trichloroethene	EPA 624	ND		20		20.11	LCSD	100.6	4.57	25.00	65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	107	65 - 135
Dibromofluoromethane	103	57 - 139
Toluene-d8	105	65 - 135

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Drew Galleni	Phone No.: 510 8935160	Purchase Order No.:	Send Invoice to (if Different) / Phone
Company Name: Clearwater Group	Fax No.: 510 8935947	Project Number: ZP046A	Company
Mailing Address: 520 3rd St. Suite 104		Project Name: EAGLE GAS	Billing Address (if Different)
City: Oakland / State: CA / Zip: 94607		Project Location: Oakland	City: / State / Zip

Sampler: Ben Pink

Date: 5-7-01

Turn Around Time: Same Day ☐ / 24 Hour ☐ / 48 Hour ☐ / 72 Hour ☐ / Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix	Composite	Grab	Containers	Preservative
MW-1	25486-001	5-7	1325	W			7	
MW-2	002		1430				7	
MW-3	003		1400				7	

Volatile Organics by GC/MS: 624 ☐ 8240 ☐ Freon 113 ☐ 8260B ☐ — X
Fuel Oxygenates by 8260B ☐ — X
MTBE by 8260B ☐ — X
Pesticides-8081 ☐
PCBs - 8082 ☐
Halogenated or Aromatic Volatiles: 601/8010 ☐ 602/8020 ☐ F113 ☐ 8021 ☐ — X
TPH as Gas/BTEX/MTBE ☐ — X
TPH as Gas/BTEX/MTBE: 8260B ☐ — X
Base/Neutral/Acid Organics 8270 ☐
8270-SIMS ☐
Fuel Scan
Diesel — X
w/ Si-gel Standard Cleanup ☐ — X
w/ Si-gel Column Cleanup ☐ — X
1,2 DCA / EDB (8260) — X
TRPH ☐ Oil & Grease ☐
THM (502.2)
Metals - Circle Below: Total ☐ Dissolved ☐

Remarks

Relinquished by:	Received by:	Date:	Time:
Ben Pink	C. K. Thom	5/8/01	1545
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

Entech Analytical Labs, Inc.

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June 07, 2001

Drew Galleni
Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607

Order: 25739
Project Name: Eagle Gas
Project Number: ZP046A
Project Notes:

Date Collected: 5/31/01
Date Received: 5/31/01
P.O. Number: ZP046A

On May 31, 2001, sample was received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	EPA 8270C PAH	EPA 8270C

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,

Michelle L. Anderson
Laboratory Director

Entech Analytical Labs, Inc.

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Clearwater Group, Inc.
520 Third Street, Suite 104
Oakland, CA 94607
Attn: Drew Galleni

Date: 6/7/01
Date Received: 5/31/01
Project Name: Eagle Gas
Project Number: ZP046A
P.O. Number: ZP046A
Sampled By: Client

Certified Analytical Report

Order ID: 25739 **Lab Sample ID:** 25739-001 **Client Sample ID:** MW-2

Sample Time: 10:00 AM **Sample Date:** 5/31/01 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Naphthalene	9.7		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
2-Methylnaphthalene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
2-Chloronaphthalene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Acenaphthylene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Acenaphthene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Fluorene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Phenanthrene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Anthracene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Fluoranthene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Pyrene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Benzo(a)anthracene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Chrysene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Benzo(b)fluoranthene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Benzo(k)fluoranthene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Benzo(a)pyrene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Indeno(1,2,3-cd)pyrene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Dibenz(a,h)anthracene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C
Benzo(g,h,i)perylene	ND		1	5	5	µg/L	5/31/01	6/5/01	BW5010	EPA 8270C

Surrogate	Surrogate Recovery	Control Limits (%)
2-Fluorobiphenyl	50	43 - 116
Nitrobenzene-d5	46	35 - 114
p-Terphenyl-d14	54	33 - 141

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Michelle L. Anderson, Laboratory Director

Environmental Analysis Since 1983

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Quality Control Results Summary

QC Batch #: BW5010 **Units:** µg/L
Matrix: Liquid **Date Analyzed:** 6/4/01

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: EPA 8270C											
1,2,4-Trichlorobenzene	EPA 8270C	ND		50		31.424	LCS	62.8			39.0 - 98.0
1,4-Dichlorobenzene	EPA 8270C	ND		50		30.769	LCS	61.5			36.0 - 97.0
2,4-Dinitrotoluene	EPA 8270C	ND		50		32.484	LCS	65.0			24.0 - 96.0
2-Chlorophenol	EPA 8270C	ND		75		42.372	LCS	56.5			27.0 - 123.0
4-Chloro-3-methylphenol	EPA 8270C	ND		75		41.539	LCS	55.4			23.0 - 97.0
4-Nitrophenol	EPA 8270C	ND		75		10.678	LCS	14.2			1.0 - 132.0
Acenaphthene	EPA 8270C	ND		50		32.17	LCS	64.3			46.0 - 118.0
n-Nitroso-di-n-propylamine	EPA 8270C	ND		50		33.963	LCS	67.9			41.0 - 116.0
Pentachlorophenol	EPA 8270C	ND		75		38.585	LCS	51.4			9.0 - 103.0
Phenol	EPA 8270C	ND		75		12.651	LCS	16.9			5.0 - 112.0
Pyrene	EPA 8270C	ND		50		36.7	LCS	73.4			26.0 - 127.0

Surrogate	Surrogate Recovery	Control Limits (%)
2,4,6-Tribromophenol	60	10 - 123
2-Fluorobiphenyl	57	43 - 116
2-Fluorophenol	26	5 - 112
Nitrobenzene-d5	60	35 - 114
p-Terphenyl-d14	65	33 - 141
Phenol-d6	16	5 - 112

Test: EPA 8270C											
1,2,4-Trichlorobenzene	EPA 8270C	ND		50		31.8	LCSD	63.6	1.19	28.10	39.0 - 98.0
1,4-Dichlorobenzene	EPA 8270C	ND		50		30.893	LCSD	61.8	0.40	32.10	36.0 - 97.0
2,4-Dinitrotoluene	EPA 8270C	ND		50		29.103	LCSD	58.2	10.98	21.80	24.0 - 96.0
2-Chlorophenol	EPA 8270C	ND		75		40.153	LCSD	53.5	5.38	28.70	27.0 - 123.0
4-Chloro-3-methylphenol	EPA 8270C	ND		75		39.151	LCSD	52.2	5.92	37.20	23.0 - 97.0
4-Nitrophenol	EPA 8270C	ND		75		9.269	LCSD	12.4	14.13	47.20	1.0 - 132.0
Acenaphthene	EPA 8270C	ND		50		31.051	LCSD	62.1	3.54	27.60	46.0 - 118.0
n-Nitroso-di-n-propylamine	EPA 8270C	ND		50		32.865	LCSD	65.7	3.29	55.40	41.0 - 116.0
Pentachlorophenol	EPA 8270C	ND		75		37.944	LCSD	50.6	1.68	48.90	9.0 - 103.0
Phenol	EPA 8270C	ND		75		11.328	LCSD	15.1	11.03	30.00	5.0 - 112.0
Pyrene	EPA 8270C	ND		50		34.015	LCSD	68.0	7.59	25.20	26.0 - 127.0

Surrogate	Surrogate Recovery	Control Limits (%)
2,4,6-Tribromophenol	58	10 - 123
2-Fluorobiphenyl	55	43 - 116
2-Fluorophenol	24	5 - 112
Nitrobenzene-d5	58	35 - 114
p-Terphenyl-d14	60	33 - 141
Phenol-d6	14	5 - 112

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Drew Galleni	Phone No.: 5108935160	Purchase Order No.:	Send Invoice to (if Different)	Phone	
Company Name: Clearwater Group	Fax No.: 5108935947	Project Number: ZP0406A	Company		
Mailing Address: 520 3rd St. Suite 104		Project Name: Eagle Gas	Billing Address (if Different)		
City: Oakland	State: CA	Zip: 94607	Project Location: Oakland	City:	State	Zip

Sampler: Ben Pink

Date: 5-31-01

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix	Composite	Grab	Containers	Preservative	Volatile Organics by GCMS: 624 ☐ 8240 ☐	Freon 113 ☐ Fuel Oxygenates by 8260B ☐ MTBE by 8260B ☐	Pesticides-8081 ☐	PCBs - 8082 ☐ Halogenated or Aromatic Volatiles: 8010/8010 ☐	F113 ☐ TPH as Gas/BTEX ☐ 8021 ☐ 8021/8020 ☐	TPH as Gas/BTEX/MTBE ☐ Base/Neutral/Acid Organics 8270 ☐	8270-SIMS ☐ Fuel Scan Diesel ☐	w/ Si-gel Standard Cleanup ☐ w/ Si-gel Column Cleanup ☐	PNAs 8270 (GCMS)	TRPH ☐ Oil & Grease ☐	THM (502.2)	Metals - Circle Below Total ☐ Dissolved ☐	Remarks
MW-2		5/31	1000	W			2	HCl									X				25739-001

Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

REGION

COUNTY Alameda

NEAR Fruitvale

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

WELL LOG

BASIN

DWR NO. 02S/03W-7J B & M

OTHER NOS. No. 1

– 01-1421

LOCATION West side of Fruitvale Avenue at Estuary at Fruitvale Power House (Power house torn down 1955)

OWNER Southern Pacific ADDRESS

DRILLED BY John P. Murphey ADDRESS

DRILLING METHOD Cable GRAVEL PACKED DATE COMPLETED 1911

SIZE OF CASING DEPTH STRUCK WATER AT

PERFORATIONS 117-124, 155-157, 169-173 SIZE ½" x 3" No.

WATER LEVEL BEFORE PERFORATING AFTER Static at 19'6"

TEST DATA: DISCHARGE G. P. M. DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

SURFACE ELEV. DATUM SOURCE OF INFORMATION Murphy

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0-2		Black adobe		
2-10		Yellow clay		
10-18		Sandy clay		
18-22		Sand and clay		
22-29		Clay and sand		
29-39		Clay		
39-42		Sand and clay		
42-45		Clay		
45-88		Sand and clay		
88-96		Blue clay		
96-98		Blue sand and cemented gravel		
98-103		Blue clay		
103-111½		Yellow sandy clay		
111½-117		Yellow cemented gravel		
117-123½		Loose gravel		
123½-147		Yellow sandy clay		
147-152		Yellow clay, small gravel		
152-154		Yellow sand and clay		
154-156		Gravel		
156-159½		Yellow sandy clay		
159½-161½		Yellow sand		
161½-162		Gravel		
162-166		Yellow sandy clay		
166-168		Yellow clay		
168-173		Gravel		
173-218		Yellow clay		
218-239		Blue-gray clay		
239-260		Yellow sandy clay		
260-277		Blue clay		
277-279		Cemented gravel		
279-283		Blue clay and gravel		
283-305		Blue clay		
305-316		Blue sand		
316-321		Blue sand and clay		
321-331		Blue clay		
331-334		Yellow clay and gravel		
334-336		Cemented sand with clay		
336-356		Yellow clay and gravel		
356-464		Blue clay		

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY DATE SHEET 1 OF 2

FORM 263

REGION

COUNTY Alameda

NEAR Fruitvale

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

WELL LOG

BASIN

DWR No. 02S/03W-07J

OTHER Nos. No. 2

01-1422

LOCATION (See Well No. 1)

OWNER Fruitvale Power House ADDRESS Oakland

DRILLED BY ADDRESS

DRILLING METHOD GRAVEL PACKED DATE COMPLETED May 25, 1910

SIZE OF CASING DEPTH STRUCK WATER AT

PERFORATIONS 116-125, 158-159, 170-175 SIZE ½" x 3" No.
Too salty in 1932 for boiler

WATER LEVEL BEFORE PERFORATING AFTER Static at 20'2"

TEST DATA: DISCHARGE G. P. M. 8.00 DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

SURFACE ELEV. DATUM SOURCE OF INFORMATION

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICK-NESS	SP. YIELD %
0-12		Yellow clay		
12-20		Yellow sandy clay		
20-23		Yellow sand and clay		
23-34		Yellow sandy clay		
34-45		Yellow clay		
45-49		Sandy yellow clay		
49-91		Yellow clay		
91-97		Blue clay		
97-98		Cemented gravel		
98-102		Yellow sandy clay		
102-104		Cemented gravel		
104-111½		Yellow sandy clay		
111½-116		Cemented gravel		
116-125		Loose gravel		
125-137		Yellow sandy clay		
137-146		Yellow clay		
146-151½		Yellow clay and gravel		
151½-159		Gravel		
159-167		Yellow sandy clay		
167-169		Yellow sand		
169-175		Loose gravel		
175-180		Yellow clay		

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY DATE SHEET 1 OF 1

FORM 263

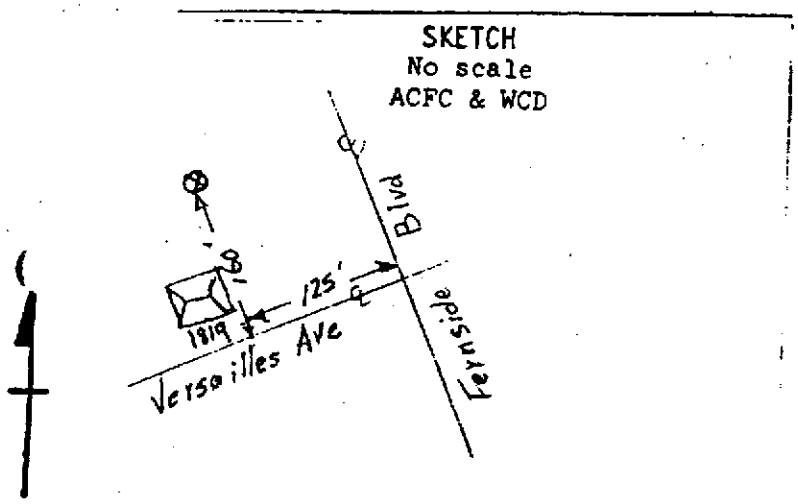
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

32158

SKETCH
No scale
ACFC & WCD



CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

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